Evidence Table Construction Mutans strep Q2

Mutans group
Question 2: Are subjects who have undetectable levels of cariogenic flora more likely to acquire them from subjects who have high levels of cariogenic flora than from subjects who have low levels of cariogenic flora?
Designate teeth:
Primary, permanent coronal, permanent root, or mixed dentition
Initial lit. scan by JMT, AT, JL

M # Q2 Cross ref #s below	Yr	Title	Auth-ors	Design per AHRQ	Sample source/ country/ method/ response rate	No subj, No each grp/ No subj lost	Micro methods/ Evaluator blinding	Lesion detection/ Examiner training, reliability, blinding/ Subject blinding	Other relevant data, questions, demog, Quality of data/strategy	Findings (stat measures: means, odds ratios, risk ratios, likelihood ratios, sensitivity, specificity, conf intervals.) Other inferences re topic of this evidence table.
294	00	Genotypes of mutans streptococci tend to persist in their host for several years	Emanuelsson and Thornqvist	Longi 2-5 yr. A followup to a study (Emanuelsson et al 98) of 11 fams consisting of M, F, first born child age 3 ± 0.5 yr	Sweden	11 fams; parents/child pairs	Plaque mutans to VMGII to Strip Mutans. DNA fingerprinting	na		Six mother-child pairs shared a genotype at baseline and this pattern remained for five pairs at the end of the study. The results suggest that genotypes of mutans streptococci have a fairly high degree of consistency in children between 3 and 8 years of age as well as in adults, indicating persistence of the strains. However, the results also indicate that some subjects may gain and/or lose genotypes.

97	00	The fidelity of mutans streptococci transmission and caries status correlate with breast-feeding experience among Chinese families	Li et al	Longi 1 yr	Beijing, PRC	48 fams; 2-3 yo children	Pooled plaque, twice, at 6 month intervals. Six isolates of MS were picked at random from selective medium from each individual at each 6-monthly visit. DNA fingerprinting of multiple mutans	WHO 87 criteria	Breast feeding and longevity of breast feeding (bf). Did not spot assessment of whether mothers prechew solid food for babies or give supplemental sweets or other foods, and whether this is more common practice among bf vs non-bf M/C pairs./ Stratified on bf. Other dietary consequences of close M/C relnshp, such as prechewing of foods or supply of sweets?	66% of the children at 2-3 years of age harbored MS, and 46% were caries-active. Of those children, 70% were breast-fed. Among the children whose chromosomal DNA fingerprint genotypes of ms matched that of their mothers, 88% were breast-fed compared with only 12% who were not breast-fed (p = 0.03). Children who were breast-fed for more than 9 months were likely to harbor strains of ms common to their mothers (p = 0.04) and experience more dental caries (dmft = 4.4) at 3 years of age compared with children who were breast-fed less than 9 months (dmft = 1.4, p = 0.04).

36	00	Influence of maternal xylitol consumption on acquisition of mutans streptococci by infants	Soderling et al	2 yr longi; randomized, interventional. Iinterventions: mother either chewed (2-3 times/day) xylitol gum when child 3 mos old until child was 2 yrs old; got CH varnish when child 6 mos old and then q6m until child 1.5 yr old; or F when child 6 mos old and then q6m until child 1.5 yr old. Children not txd.	Ylivieska, Finland health center. Of 338 preg women screened, 195 had ≥10E5 ms in saliva. This was study entry criterion.	Numbers: X=106 CH=30 F=33/ 29. Small dropout from 2 yr longi study]	Sal MSB	Impossible blinding of subjects for gum chewers	All adult subjs got regular oral health care program per National Board of Health of Finland. It includes free post-natal exams, advice on diet, HO, use of F, and, if necessary, restorative care. Childcare on weekdays by someone other than biological mother for > half yr: 20%X, 19%F, 20%CH.	The salivary ms levels of the mothers remained high and not significantly different among the three study groups throughout the study. At two years of age, 9.7% of the children in the xylitol, 28.6% in the chlorhexidine, and 48.5% in the fluoride varnish group showed a detectable level of MS. --statistically significant reduction of the probability of mother-child transmission of ms assessed at two years of age. F vs X RR=5.0 (95% CI 2.3-11.0); CH vs X RR=3.0 (95% CI 1.2-7.7); F vs SH RR=1.7 (95% CI 0.7-4.0) was ns. Hence, intervention of xylitol gum regimen in randomized trial effects risk of mother to child transmission of ms.

295	99	Intrafamilial distribution of mutans streptococci in Japanese families and possibility of father-to-child transmission	Kozai et al	Obs, Xsec	Hiroshima,Japan / All solicited agreed to participate	20 families consisting of 20 couples and 36 of their children. 1908 ms isolates	Plaque pooled from teeth, MS as primary isolation plate, then MSB subcultures. DNA fingerprinting of multiple mutans isolates		Other caretakers?	Among the 70 genotypes found in the children, 36 (51.4%) were in agreement with their mothers and 22 (31.4%) were in agreement with their fathers. The other genotypes (18.6%) did not correspond with the parents. Homologous strains between parents were found in only two couples. Fathers or others as well as mothers can be sources of transmission.

90	98	Caries prevention during pregnancy: Results of a 30-month study.	Brambilla et al. JADA 129:871-7,1998	30 mo longi, randomized interventional. Intervention: Tx-- diet counseling; prophy and OH, once; systemic F, 1 mg/d starting from last week of 6th month of pregnancy; plus daily rinse with 0.05% F; daily rinse of 0.12 % CH. The latter was to occur in 3 cycles of 20 days ea, with 2 10-day rinse free periods. Controls: diet counseling; one session of professional prophy and OH instruc; systemic 1 mg F/day starting last week of 6th month.	Milan, Italy, OBGYN clinic/310, of which 65 with ms/ml saliva >10E5 selected.	Tx=33; Control=32	Mothers: unstim saliva, mid-morning, done at 6, 12, 18, and 24 mo after 3 mo baseline. Infants: at 6, 12, 18, and 24 mo. MSB. Microscopic and biochemical confirmation.	Claimed that hygienist was blinded. Hard to exclude bias due to CH stain.		Statist signif redn of ms levels in mothers ($p<0.001$) and presumed concomitant caries risk reduction (lesions not scored). Statist signif redn of early colonization of child (by survival analysis, Kaplan-Meier) and by mean ms levels of children.
296	98	Transmission of mutans streptococci between mothers and children with cleft lip and/or palate	De Soet et al	Obs. FROM ABSTRACT. PAPER NOT AVAILABLE	The Netherlands, cleft lip and/or palate	21 M/C pairs	5 colony morphotypes from each saliva, selective medium. PCR random primers to type isolates.		Obturators?/ ? reliability of methods, viz the PCR strategy unclear to this reviewer.	In only 38% of the mother-child pairs were the same PCR types found in mother and child. Suggests that S. mutans had been transmitted from mother to child in one-third of the population studied. Transmission of S. mutans from mother to child is not frequent in children with oral cleft.

83	98	Genotyping shows different strains of mutans streptococci between father and child and within parental pairs in Swedish families	Emanuelsson et al	obs	Malmo, Sweden	25 3-yo children, their mothers and 18 of their fathers	Pooled plaque. VMGII transport. Strip mutans. DNA fingerprinting		dmft Diet , bf, child care	5 children harbored mutans streptococci genotypes different from their parents. Six children had genotypes identical to their mothers. None of the children harbored genotypes similar to their fathers, even though two thirds of the fathers had high or very high mutans streptococci levels. No matching of genotypes was observed within the 11 parental pairs. Mothers as primary caregivers with high "Strip mutans" scores were more often observed in the group with identical genotypes within the mother-child pairs, the "matching group", than in the "no-matching group". These data indicate that the fathers and the children had not acquired each others' strains of mutans streptococci nor had the spouses. The results suggest that the children acquired mutans streptococci both from outside and inside the family.
85	98	Mutacin production by Streptococcus mutans may promote transmission of bacteria from mother to child	Gronroos et al	Obs. To determine whether mutacin (mutans bacteriocin-like inhibitory substrances) is a factor in M/C transmission of ms	Finland	19 mothers and their 18-36 mo chldn	Mutacin typing vs panel of 14 strains. Ribotyping. Total of 145 isolates studied		Other caregivers	Streptococcus mutans isolates had more inhibitory activity than did Streptococcus sobrinus isolates. Identical ribotypes had similar mutacin activity profiles within a subject, initially and in the follow-up studies, in all but two cases. The mothers harbored a total of 37 different mutans streptococcal ribotypes. Six children were negative for mutans streptococci. Transmission was probable in 9 of 20 mother-child pairs on the basis of the presence of identical strains, as determined by ribotyping and bacteriocin (mutacin) typing. S. mutans isolates that produced bigger inhibitory zones and had mutacins against several indicator strains were more easily transmitted than isolates producing narrower zones against fewer indicator strains. This suggested that mutacin production is a virulence factor expressed as a facilitator of transmission. S. mutans strains shared between a mother and her child had a broader spectrum of inhibitory activity than did nontransmitted strains.

27	98	Effect on caries experience of a long-term preventive program for mothers and children starting during pregnancy	Gunay et al	Interventional longitudinal. 2 cohorts. No stipulation re randomization. Intervention – <u>In phase 1</u>: Individualized OH instruction, prof cleaning, topical F varnish, CH mouthrinse, diet counselling. Also, to selected high risk mothers, "need-related" instrucs to prevent transmission and "bad diet" habits to babies. If required, preventive and restorative Tx. Also, education re etiol of caries and PD and import of less cariogenic diet. <u>In phase 2</u>: recall @ q6m, ms monitoring, individ prophylactic care till baby 3 yo. Taught to	Hannover, Germany 86 pregnant F, diverse SES, 3 phase longi study of children /?	Intervention of individ prophylatic care: 86 M/C pairs at baseline; 54 M/C pairs at age 3; 47 M/C pairs at age 4. Control: 65 M/C pairs at age 3; 45 M/C pairs at age 4./ Interv: baseline to 3 yr –32; 3 yr to 4 yr –7. Controls: 3 yr to 4 yr - 20	Salivary ms Dentocult SM	dmfs, DMFT	Approximal plaque index (API), community periodonal index of treatment need (CPITN)/ Mothers oral health improved among intervention group	All children in the second phase of the study group revealed a "naturally" healthy dentition with an API of 0-25% and a salivary S. mutans score of 0 (0-10(3) cfu/ml). In the third phase, only four of the 47 children of the study group had caries lesions, with a mean dmfs of 1.5. No S. mutans could be detected in 20 (42.6%) children. Ten (21.3%) children of the study group had a S. mutans score of ≤ 2 (> 10(5) cfu/ml). In contrast, only 53 of the 65 children of the control group (second phase) and 26 of the 45 control children (third phase) revealed a naturally healthy dentition. The remaining 19 children of the control group revealed a mean dmf-s of 7.0 at 4 years of age. In the control group, no S. mutans could be detected in 25 (38.5%) children at 3 years of age whereas 21 (32.3%) children showed a S. mutans score of ≥2. In the third phase, a salivary S. mutans score of ≥ 2 was found in 27 (60%) children of the control group. The statistical comparison between the study and the control groups revealed significant differences for all results determined (P < 0.001). Hence, longitudinal intervention to reduce mothers' ms was effective in reducing childs ms and caries prevalence and incidence.

				clean baby's teeth with low F paste, education re healthy diet habits for baby. <u>In phase 3</u>: more of same instuction, prof tooth cleaning, topical F, CH varnish, diet counselling for adults and children. <u>Controls</u> are 3 yr old children with no intervention to either M/C.						

84	98	Demonstration of identical strains of mutans streptococci within Chinese families by genotyping	Redmo-Emanuelsson et al	Obs families, xsec	Wuhan, China	18 fams; 3 yo children./ 11 families excluded because of incomplete data sets.	Plaque isolation on MSB and serotype confirmation. Genotyped by endonuclease mapping done in Malmo, Sweden		No older siblings (asserted). nurturing, other caregivers. Numbers of families studied does not reconcile with number reported in results and number excluded, maybe my error.	In 4 families the mothers shared genotypes with the child, but in 3 families it was the father and the child who harbored a similar genotype. In 2 families, all subjects harbored an identical genotype. The spouses in one parental pair had an identical genotype. In one family all subjects harbored their unique genotypes.
89	98	The relationship between bottle usage/content, age, and number of teeth with mutans streptococci colonization in 6-24-month-old children	Mohan et al	Longi obs	WIC children, Hartford, CT low income/ WIC	122	Tongue blade to agar. Hence, Saliva Kimmel-Tinanoff agar	Single examiner	Bottle feeding, sweetener in bottle	MS was detected in more than one-third of the 6-24-month-olds. Unlike some studies that suggest a later period of infectivity, approximately 20% of children under 14 months of age, including 4 of 22 infants aged 6-9 months, were colonized with MS. Thus, disputes "window of infectivity concept". Children who consumed sweetened beverages in their baby bottle had a statistically significant, four-fold increase in the odds of colonization by MS relative to children who consumed milk.

88	98	Colonization with mutans streptococci and lactobacilli and the caries experience of children after the age of five	Straet eman s et al	Longi Obs; stratified on basis of those colonized by ms at age 5 vs those not so colonized. That is, a case-control by the criterion of mutans infection by age 5.	Nijmegen,Net herlands, Foundation for Pediatric Dent Previously in Roeters et al 95 study.	Tot=196 in original cohort. 109 were traced: 58 ms either never detected or only once detected betw age 2 and 5; 51 ms always detected during follow-up cultures. For this study done at age 11: N=55 not infected at age 5 vs N=25 infected by age 5 / Only analyzed data for individuals available for eval at both ages.	PSS kept cold, processed within 12 h. Ms and lb, by TSY20B and SL agars	mfs and MFS		For children at 11 years of age who were MS-free until 5 years of age, the mfs and MFS values at 11 years of age were found to be 1.12+/-2.81 and 0.44+/-0.88, respectively. These values are much lower than those of a control group of 11-year-old children who had always been MS-positive since the age of 5, being 3.10+/-3.43 ($p<0.0007$) and 1.20+/-1.91 ($p<0.04$), respectively, Mann-Whitney. Of the 30 children without detectable MS up to the age of 5 yr, 22 had acquired MS at 11 years of age, but their MS counts were significantly lower than those of the control group. The acquisition of MS is still possible after the so-called "window of infectivity". Delayed acquisition of MS may reduce the caries experience in the primary and permanent dentition at a later age. No differences were found in the numbers of lactobacilli and sugar intakes per week between the children MS-free and the children MS-colonized at 5 years of age

66	98	Incidence of mutans streptococci and lactobacilli in oral cleft children wearing acrylic plates from shortly after birth	Van Lover en et al	Longitudinal eval of 3 cohorts: cleft palate with obturator; clefts but without obturator; normal controls. Microbiologica lly sampled at ~6,9,13, 18, 24 months of age. Obturators placed shortly after birth.	Amsterdam and Rotterdam, the Netherlands. Caucasian subjects/ Cleft palate teams's patients	62 cleft lip/palate ± obturators. 24 with obturators placed in early life. Also normal control group (N=35).	Cotton swab to absorb saliva without contact with solid surfaces. Swabs weighed to determine volume of saliva. Swabs also of buccal mucosa, lower ant teeth after eruption, and acrylic obturators. Swabs to transport fluid (YEPT). BA, TYCSB, and SL for total, ms and lb at 18 mos of age. Confirmatory tests on identifications.			The oral cleft children wearing an acrylic plate from shortly after birth were colonized earlier with mutans streptococci and lactobacilli than the non-plate oral cleft children--~ 18 % vs 0 % at 6 mo. There is a parallel increase of % infants colonized at ~9 and ~13 mo, so that differential is maintained. This differential no longer persists at ~ 18 mo. In the children wearing acrylic plates, the prevalence of lactobacilli decreased with age, while the prevalence of mutans streptococci increased
115	96	Oral colonization by more than one clonal type of mutans streptococcu s in children with nursing-bottle dental caries	Alaluu sua et al	obs	Finland.	6 nursing bottle caries vs 6 caries free non bottle children, and their mothers	12 plaque isolates/child; and 4-13 isolates/mother's saliva. Cultured on MSB and 3-13 colonial types picked for genetic analysis. Ribotyping. Children 1.5-3 yo at sampling	Ripa criteria (1988).		Children with nursing-bottle caries exposed to frequent consumption of sucrose had a high proportion of mutans streptococci in plaque and four of them were colonized with more than one ribotype. However, caries-free children had a low proportion of mutans streptococci in plaque and only one of them harboured more than one ribotype. Mothers of children with nursing bottle caries had similar levels and numbers of ribotypes of mutans streptococci in saliva as the mothers of the caries-free children. Children with nursing-bottle caries were not only heavily infected with mutans streptococci but also often colonized with more than one clonal type. In the child's acquisition of such clones, frequent sugar consumption may have an important role.

82	95	The fidelity of initial acquisition of mutans streptococci by infants from their mothers	Li and Caufield	Obs, 3 yr longi	Birmingham, AL, white and black	34 M/C and 7 F/C pairs.	Unstim sal of mothers and either saliva or plaque of children. Sampled q3m from birth to ~3 yr. Genotyping of ms		Data on dental developmental milestones	Genotypes of ms in infants appeared identical to those present in mothers in approximately 71% of 34 mother-infant pairs studied. Female infants acquired MS genotypes identical to their mothers' with significantly greater fidelity than male infants (88% vs. 53%). In no instance was there homology of genotypes between fathers and infants or fathers and mothers, further supporting the notion that acquisition of MS in humans follows maternal lines. Male children who harbored the same genotype as their mothers had a 13 times greater likelihood of having caries than female children who acquired their mothers' strain; this difference was statistically significant ($p < 0.01$).
87	94	Association between mother-infant salivary contacts and caries resistance in children: a cohort study	Aaltonen and Tenovuo	Obs, 7 yr longi	Lohja district, Finland/ All who participated in earlier study invited to followup study in 1990.	327 7-mo old and mothers at baseline. 7 yr later. Rare contact =34; Frequent contact=21/ 272	For M and C, paraffin stim saliva for lb (Dentocult LB). From same samples, transport in Tsoy with glycerol/frozen. The ms on MSB and total flora on BA	Single examiner. Only lesions into dentin scored. Data on caries scores at age 4 gotten from health center records./ Examiner had access to previous records. Not clear if used them before current exam.	Freq contacts detnd by questionnaire: common spoon for M and C; clean or wet pacifier in mouth of M; kiss directly on mouth. Breastfeeding, prechew food? Breastfeeding, nurturing, diet habits	Children with frequent maternal close contacts (F group, N = 21) had significantly less ms in saliva than the children with rare close contacts (R group, N = 34, P = 0.02). The F and R groups did not differ significantly with respect to other children's caries risk factors, or in age, sex, stage of dental development, dental treatment, or the social aspects studied. Speculates that salivary immunological phenomena are of import. Cannot rule out other covariants/confounders.

30	94	Influence of caries-preventive measures in mothers on cariogenic bacteria and caries experience in their children	Kohler and Andreen	Longi with ± intervention on mothers when children were 3 yr old to reduce sm; follow-up obs now 4 y later (children now 7 yo)	Oskarshamn, Sweden;	Contol= 33; Tx = 26/ Control: 7M, 7child Tx: 2M, 1child	Paraffin stim saliva. VMGII. ms and lb by MSB and SL.	Exam by std conditions (Koch)		Control mothers had significantly higher levels of salivary mutans streptococci and lactobacilli than the test mothers ($p < 0.05$). The median level of salivary mutans streptococci was 0.6 x 10(6) c.f.u. (colony-forming units) per ml in the test mothers and 1.3 x 10(6) c.f.u. in the control mothers. The median level of salivary lactobacilli was 10 times higher in control than test mothers (80 x 10(3) and 7 x 10(3) c.f.u. per ml, respectively). Significantly more children of control than test mothers carried mutans streptococci (95 versus 46%) (z-test; $p < 0.01$). Children of test mothers had lower salivary levels of mutants streptococci and lactobacilli ($p < 0.05$). Twenty three % of the test children were caries-free, compared with 9% of the control children (z-test; $p < 0.01$). The mean caries experience of the test children was also significantly lower than that of the control children (defstot 5.2 and 8.6, respectively; $p < 0.05$).

86	93	Initial acquisition of mutans streptococci by infants: evidence for a discrete window of infectivity	Caufield et al	Obs, 5 yr longi. Randomized to tx and control groups of mothers. Before infants' births, restorative care to all M. Then randomized to ± tx. Tx consisted of professional prophy, 2 wks of I2-KI-NaF topical applications in glycerin. Control got placebo of erythrocin dye in glycerin. Time to infection criterion	Maternal infant care ctr, Birmingham, AL	46 M/C pairs	Every 3 months, samples from M and their C. M -- "unstim" saliva. RTF. C – cotton swab floor of mouth, swab of teeth and oral mucosa, toothpick from approx. Streak directly to MSB for ms. For 8 children with no detectable colonization, floss samples.		Demographic data; history of use of caretakers (daycare, babysitters, relatives) of child subjs and duration of such care/d./ Didn't ask whether practice of prechewing of food by mother for child	No predentate acquisition. Initial acquisition of MS occurred in 38 children at the median age of 26 months during a discrete period we designated as the "window of infectivity". Associated with this period is the cumulative surface area of the erupted teeth, which increases sigmoidally with time and is of similar curvilinear form with cumulative probability of ms acquisition as a function of age. Maximal acquisition seen at about 36 mo at probability of ~0.8. Half of the children between the ages of one and two years who were not colonized by MS were attended by caretakers other than the mother. All of the caries-active children during this same time period were cared for by their mothers; the difference was statistically significant

297	93	Transmission of mutans streptococci to infants following short term application of an iodine-NaF solution to mothers' dentition	Dasanayake et al	3 yr longi, interventional, randomized. Tx: Peri-eruption of childs first teeth mothers were ± topically txd in one cycle with I2-KI antiseptic containing NaF, in glycerin base, to their teeth 6x in a q2d regimen during a 2 wk interval. Then, no more tx. Placebo was erythrocin dye in glycerin base, adjusted to same pH 4.5.	Maternal infant care ctr, Birmingham, AL	48 M/C pairs	Child's colonization by ms and lb followed till age 3. Done by cotton swab collection of spit from sublingual area. RTF. Also pooled plaque from buccogingival to RTF. MSB and SL.			Significant reductions in maternal salivary MS (P = 0.04), lactobacilli (P = 0.04), total streptococci (P = 0.002), and total cultivable organisms (P = 0.004) immediately following treatment. In children, 3-yr incidence of MS colonization and the time of acquisition of MS or the caries experience did not differ significantly between the two groups.
298	93	Transmission of oral bacterial species between spouses	Saarela et al	Obs, xsec	Finland	4 married couples	A. actinomycetemcomitans, P. gingivalis and S. mutans isolation and ribotyping		underpowered	The spouses in 2 couples shared the same sero- and ribotypes of A. actinomycetemcomitans and S. mutans

165	92	Effects of chlorhexidine-fluoride gel treatments in mothers on the establishment of mutans streptococci in primary teeth and the development of dental caries in children	Tenovuo et al	Longi; intervent; 3 grps according to mother's ms level in saliva. Randomized mothers (and consequently their infants) to: Grp 1--If >10E5, got gel biy or Grp 2--no gel. Grp 3 had < 10E5 and got no gel. Mothers txd 1% CH – 0.2% NaF gel in standard trays with 10 ml gel /tray for 5 min applic. Then gel rinsed out with water. This procedure repeated 2 more times on treatment day. The three applications were repeated on the following day. Most mothers got 5-6 such treatment cycles, but some less, due to their childrens' colonization with ms.	Turku, Finland 151 1 yo M/C pairs. Low caries prevalence/ Essent all Finish parents (usually mother) bring infant to 1st visit to dentist at 6 mo and then again at 12 mo. 252 invited to participate and 250 consented at 12 mo visit.	Grp 1=56; Grp 2 = 50; Grp 3 = 45. Actual N at tx outset was 59, 53, 46, respectively./ 250 consenting mothers at 6 mos age of child. Before treatments began, 34 mothers excluded (reason not stated) and lost 48 at 12 mos – 40 moved, 1 death, 1 pregnancy, 1 declined participation (that's 44).	Sal samples at about 6, 12, 24 and 48 mos, Dentocult SM for ms. Plaque at 2, 3 and 4 yo.	2 dentists, recording only cavities extending to dentin. Dentists (examiner training). Children blinded, not mothers		In the total study population, 16, 42, and 54% of the children were colonized by MS by the age of 2, 3, and 4 years, respectively. Most children harbored only Streptococcus mutans, but 2 had both S. mutans and Streptococcus sobrinus, and 2 had only S. sobrinus. Twenty-eight percent of the MS-positive children developed caries by the age of 4 years, whereas 4 out of 27 children with dental caries did not have any detectable MS in their plaque samples. Both the colonization by MS and the caries incidence were highest in grp 2 and lower in the experimental group and grp 3. These observations suggest that the reduction of maternal salivary MS at the time of tooth emergence may delay, or perhaps even prevent, the colonization of MS in the children's primary dentition with a concomitant decline in caries incidence, even in a population with an already low prevalence of dental caries. No statist signif CH-F gel effect noted with this regimen.

				Children 1 yo at baseline. Followed children for 3 yrs.						
181	89	Caries-related microbiological findings in a group of teenagers and their parents	Alaluusua et al	Obs	Helsinki, Finland	82 M/C pairs; 73 F/C pairs. These are composed of 113 teens and 163 adults	PSS levels of ms by Dentopcult SM dipslide method. Lb by Dentocult LB.	DMFS and xrs when useful		The mean number of DMFS increased with increasing levels of salivary S. mutans and lactobacilli, the correlation being highly significant both in teenagers and adults. There was a significant correlation of the DMFS indices in the mother-child pairs (r = 0.364), but the correlation was not significant in the father-child pairs (r = 0.177). The salivary level of S. mutans was higher in the children of mothers with high DMFS values ($p<0.05$) compared to the children of mothers with low DMFS values (ns).
81	89	Genetic diversity within Streptococcus mutans evident from chromosomal DNA restriction fragment polymorphisms [published erratum appears in J Clin Microbiol 1989 Aug;27(8):1918]	Caufield and Walker	obs	US	>30 individs; 3 M/Infant pairs at time of first detection of colonization of infant	Genotyping by restriction endonuclease tx of chromosomal DNA			Strains of S. mutans obtained from over 30 individuals demonstrate unique "fingerprints" of chromosomal DNA digested with restriction endonuclease HaeIII. For three mother-infant pairs --obtained at the time the infant first became colonized by this organism — the infants mutans restriction fragment profiles were identical to those of their mothers, strongly supporting the notion that mothers transmit this organism to their infants.

80	89	An investigation into the use of restriction endonuclease analysis for the study of transmission of mutans streptococci	Kulkarni et al	Obs, families	Toronto, CA.	396 strains from 58 subjects, with as many as 19 strains from ea member of 5 families	Strains serotyped for confirm of identities. Restriction endonuclease analysis (DNA fingerprinting)			The pattern of each isolate from humans was unique, except for isolates from the same individual or from the same family. REA types from subjects from different families were always heterogeneous. A high frequency of multiple REA types (up to 5) was observed in many subjects. While evidence for intra-familial transmission was obtained, including transmission between spouses, there was also strong evidence of frequent sources of infection outside of the family. [Note general conclusion that while intrafamilial spread is the rule, diversification of the ms from extrafamilial sources does occur.]
79	88	Plasmid-containing strains of Streptococcus mutans cluster within family and racial cohorts: implications for natural transmission	Caufield et al	Obs,	Birmingham, AL, dental sch clinic. whites and blacks	288 M/C pairs (total of 576 individs). Children 2-12 yo, 87% 2-5 yo.	Unstim saliva. RTF. MSB for ms. Plasmid DNA			Plasmids (all 5.6 kilobases in size) were observed at an overall frequency of 3.3%, with a significantly different frequency in whites (1.5%) compared with blacks (6.6%). Plasmid-containing strains were significantly clustered in mother-child pairs compared with nonrelated individuals (58 versus 3.3%; $p < 0.001$). Moreover, the different plasmid groups (I and II) were highly conserved within racial boundaries ($p = 0.007$).
78	85	Mouth-to-mouth transmission of the bacterium Streptococcus mutans between mother and child	Berkowitz and Jones	Obs, infants 10-16 mo, 6-8 primary incisors	Cleveland, OH	20 M/Inf pairs; 314 isolates	Infant plaque and maternal saliva. VMGII. MS for ms. Confirmed identities by morphol and biochemical tests. Bacteriocin typing.			Patterns of inhibition were sufficiently different to allow differentiation of the 314 isolates into 41 bacteriocin types. The bacteriocin codes of isolates within one pair did not correspond to the codes of strains isolated from any other pair. The number of infant strains (per infant isolates) matching maternal strains within each mother-infant pair were 10/10, 10/10, 10/10, 12/12, 2/3, 10/10, 10/10, 10/10, 3/3, 5/10, 8/8, 3/3, 8/8, 3/3, 7/7, 4/4, 3/3, 8/8, 3/3 and 4/4 for pairs 1-20, respectively. Statistical analysis, utilizing a randomization test, generated a $p < 0.0001$, which is 12 standard errors above the level expected if the pairings were random. Strong evidence of matrilineal transmission. powerful

299	85	Transmission of Streptococcus mutans in some selected families	Masuda et al	Obs in 3 generations , xsectionally This was updated slightly onto Angela's PC		15 M/C pairs, and other relatives (sibs, mothers of mothers)	Plaque Ms isolation, serotypes and mutacin types			Strains of the same serotypes of S. mutans which possessed similar mutacin patterns were predominantly detected in the siblings and mothers of each subject. However, a similar distribution of S. mutans strains was not clearly observed in other relatives including fathers, aunts, uncles and grandparents. Serotyping not useful for epi tracing.
300	84	Multiple types of the bacterium Streptococcus mutans in the human mouth and their intra-family transmission	Davey and Rogers	Obs 10 families	Australia	Ea member of 10 fams studied xsectionally, 5 of which were sampled longi also 6 mo later	SB20 medium and confirmed biochemically. Bacteriocin typing			93% of the 46 subjects harbored S mutans and multiple types were detected in 78 per cent of adults and 46 per cent of infected children. Each mouth yielded c/e/f biotypes and 46 per cent also carried d/g types. Generally, saliva types were the same as those in plaque and the second sampling confirmed the first. Most fathers did not share strains with others in the family. All the infected children shared at least one common strain with the mother.
29	84	The effect of caries-preventive measures in mothers on dental caries and the oral presence of the bacteria Streptococcus mutans and lactobacilli in their children	Kohler et al	3 yr longi, interventional (sucrose avoidance instruction, alternately assigned to Tx or control. Intervention delivered to mothers (or not) consisted of aim at reduction of S mutans, repeated q2-4m, till children 3 yo. Entry depended on sal ms of ≥10E6 ms and child of 3-8 mo.	Oskarshamn, Sweden, primiparous mothers	40 control mothers; 37 test mothers/ 4	Mothers: Sal ms. VMGII and MSB and SL. Children: If able to cooperate, paraf stim sal with RTF and MSB and SL. Fab confirmation of identities of serotypes and species.	2 dentists independently, criteria of Koch (stick with explorer/ No subject blinding		The test mothers as a group had approx. 10-fold fewer S. mutans during the test period. At the age of 3 years, 70 per cent of the children in the control group carried S. mutans, compared with 41 per cent in the test group ($p < 0.01$). Fifty-two per cent of the children who carried S. mutans had caries at this age, compared to 3 per cent of the children without this organism. The time when S. mutans was first detected in the children seemed to influence subsequent development of caries because 77 per cent of the children who carried S. mutans at the age of 15 months had caries at the age of 3 years. Approximately 40 per cent of the children in both the control and the test group had detectable lactobacilli in their saliva at 3 years. In general, the children in the control group had more lactobacilli. No signif diff in self reported frequency of sucrose intake.

67	83	Preventive measures in mothers influence the establishment of the bacterium Streptococcus mutans in their infants	Kohler et al	Longi interventional, sequential assignment to Tx or control primiparous mothers with high ms in saliva and their infants. Every second mother was given a special preventive program to reduce her salivary level to < 3 x 10(5) c.f.u. per ml. N=38 control. N=38 intervention. Intervention: OH and diet instruction, professional cleaning, F tx topically, excavation of large lesions.	Oskarshamn, Sweden	81 Primiparous mothers; 40 control and 41 Tx../ Controls 13; tx 20	Sal ms with threshhold of ≥10E6 for maternal inclusion. Babies cultured at 15, 23, and 36 mos of age.			28 mothers were successfully treated until their infants were 23 months old and only 3 of their infants (11 per cent) were infected with S. mutans, compared with 17 out of 38 infants in the control group (45 per cent). (signif, chi sq) In both groups, the percentage of infected infants increased with increasing age, although at all ages fewer infants were infected with S. mutans in the test group than in the control group. Sixteen infants of successfully treated mothers had reached the age of 36 months without detectable infec vs control (p<0.02 shi sq with Yates'correction). Three were infected (19 per cent) compared with 17 out of 27 in the control group (63 per cent).
301	82	Familial clustering of the Streptococcus mutans cryptic plasmid strain in a dental clinic population	Caufield et al	Obs 100 pedo patients and mothers	Birmingham, AL	100 M/C pairs vs other children	Unstim saliva of children from which a single ms as isolated. Plasmid anal			Family members of four plasmid-positive patients harbored plasmid-positive S. mutans at a significantly greater frequency compared with the pedodontic population, but there was not a one-to-one correlation of strains between mothers and children.

302	82	Effect of caries preventive measures on Streptococcus mutans and lactobacilli in selected mothers	Kohler et al	Interventional, alternative assignment, longi study of primiparous mothers. Inclusion criterion included sal ms of ≥ 10E6/ml. Intervention: diet counseling (esp re sucrose avoidance, prof toothcleaning with F pumice, and OH instruc, topical F tx, excavation of larger cavities and temp fillings, then F varnish. If at followup, pt has ≥3 x 10E5 ms, 1% CH gel daily for 2 wks. Controls: std care.	Oskarshamn, Sweden	All primip mothers=249. Control=42; Tx=45	PSS. VMGII, plated on next day on MSB and SL for ms and lb.			A statistically significant reduction in both S. mutans and lactobacilli was found to result from Tx regimen p<0.001 for ms and 0.02 for lb. The basic preventive program was effective in reducing the number of S. mutans below a selected threshold value of 300 000 cfu/ml saliva in 60% of the mothers. In the remaining treated subjects chlorhexidine treatment was required to suppress the salivary levels of S. mutans below this value by about 1 log, but lactobacilli were unaffected.. Study established a complex, microbial recovery guided strategy for reduction of ms.

303	81	Maternal salivary levels of Streptococcus mutans and primary oral infection of infants	Berkowitz et al	Obs. 4 cohorts according to maternal mutans strep in saliva, and their respective babies.	Philadelphia, PA	156 mothers with 156 children; 8-18 mo, with 6-8 primary incisors. Stratification of mothers by sal ms: ND-10E3 N=46 10E3-10E4 N=25 10E4-10E5 N=42 ≥10E5 N=43	Maternal saliva. Plaque from infants. Both into VMGII and MSB for ms.			Proportion of infants colonized by ms is greatly increased among groups. Up to 58% colonized if mothers in highest salivary ms group. Chi sq p<0.0001.
304	81	Relationship of levels of the bacterium Streptococcus mutans in saliva of children and their parents	Van Houte et al	obs	Cambridge, MA, schools; 5-8 yo.	85 caries free (CF); 67 caries positive (CP). All mothers and most fathers of 50 CF children, and about 2/3 of mothers of the CP children were similarly studied.	Nonstim saliva transported to lab and plated on MSB	?		Detection freq of ms in CF children was lower than that in the CP children, 59 and 96%, respectively, chi sq p<0.01. Mean levels in CF were lower than in CP (about 10-fold, p<0.01). Detection freq in mother of CF was 62 % and lower than either the fathers (92%) or mothers (100%) of the CP children (p<0.01). Positive association noted betw mothers infection level and CP children levels of ms, but not between mother and their CF children (p<0.05)..

305	80	Primary oral infaction of infants with Streptococcus mutans	Berkowitz et al	Obs, xsec. 3 cohorts: 1) Predentate N=16; 2) 1-5 primary incisors, N=43, mean age 8.9 mo; 3) 6-8 primary incisors, N=42, mean age 13.8 mo All mothers also sampled	Philadelphia, PA, children's hospital outpt dept.	101 children, 1-18 mo and mothers	Swabs of mucosa of predentate; plaque from dentate; saliva from mothers. VMGII. Processed within 4 h. MSB, confirmatory biochem tests.			No predentate children detectably colonized. 6.9% of 8.9 mo children colonized. 28.6% of 13.8 mo children colonized. The difference in distribution of the salivary levels of S m within the maternal populations of infected vs non-infected infants was signif ($p<0.03$). Of 10 mothers with >10E5 cfu/ml, 60 % of their children colonized; of 13 mothers with <10E3/ml, 15.4% colonized. [Calc of Fishers' exact test stat shows $p=0.037$).

306	78	Intrafamilial levels of Streptococcus mutans and some aspects of the bacterial transmission	Kohler and Braththall	Obs, xsec	Gothenburg, Sweden, dental school clinic	36 M/C pairs and 31 of the fathers	Paraffin stim sal ms and lb of parents; sal ms and lb of children. MSB and SL.			An important paper for its raising the hypothesis of probability of infection of child as a f(mother's level of salivary ms).
307	77	Evidence for the transmissibility of human dental caries	Rogers	Obs	10 family groups. Adelaide, Australia	Families with children	Plaque samples from all members. Bacteriocin typing			In 6 of 10 families multiple bacteriocin types shared by mother and respective children, but not always by father. Occasionally, child had a bacteriocin type not identified in its mother. In 4 families, could identify same bacteriocin type in father/husband as mother and children. In 4 families, could not establish identity of bacteriocin types among members. The bacteriocin types identified within a family did not appear to infect other families. Vertical and horizontal transmission within close family units is suggested.
77	75	Similarity of bacteriocins of Streptococcus mutans from mother and infant	Berkowitz and Jordan	Obs	4 M/Infant pairs; Boston MA	4 pairs, children 8-14 mo.	Cotton applicators rubbed on teeth and oral mucosa of children. Saliva and plaque samples of mothers. VMGII transport. MSB resulted in 120 mutans strep isolates. Bacteriocin typing.			Most isolates were serotype c, and thus this characteristic does not allow epidemiological tracing. Bacteriocin codes of the majority of the S. m strains isolated from the 4 infants were similar to those of the S m strains of their mothers. Implies maternal transfer to child, [but does not rule out other source]. Strong, but small N.

1	75	Lactobacilli and streptococci in the mouth of children	Carlsson J et al Caries Res 9:333-9,1975	5 yr longi, randomized, observational	Umea, Sweden	30/ 9 (moved)	Cotton swabs of mouth; VMGII. culture on MS agar and MC (Carlsson's selective medium for S mutans) and SL for lb.			Oral establishment of diverse species of strep and lactobacilli followed for 5 yr in 25 children, from birth. S salivarius established in mouth within day 1 ex-utero. S sanguis not noted until after eruption of teeth. S mutans not noted until after eruption of teeth, except appearance is more gradual (than sanguis) among cohort (by 5 yo, 15/25 colonized). Lactobacilli recovered in low numbers and at less than 2yo appeared most likely to be transient oral inhabitants. While there was association between development of carious lesions and colonization prevalence of S mutans, this was not statist signif. Data suggest that initiation of carious lesions cannot be attributed to lactos and that colonization of mouth by S salivarius cannot be dependent on non-shedding surfaces. Selective medium for ms (MC) later shown to miss large proportion of ms. Conceptually important paper re life history of oral flora colonization and ecological niches.

308	72	Observations on the implantation and transmission of Streptococcus mutans in humans	Jordan et al	Obs . Attempt to isolate and antibiotically tag ms from a single parent in family, to select antibiotically tagged mutant, and then to reimplant it and watch its spread in close contacts.	US Coast Guard Base, Governors Is, NY	26 families	Isolated on MS from plaque, tagged by enrichment for strR cells. Inoculate to original donor. Sample the close personal contacts and the re-inoculated subject.			Labelled strains did not become established in high numbers in the plaques. The retention of strains was variable, some subjs lost them in few days and some retained to over 200 days. One cfu of tagged strain transiently found in spouse of one reinoculated woman. Data imply that once the ecology is established in a plaque, it is difficult to disrupt it.
		Embase search reveals no additional papers on point.								

Evidence Table Lactobacillus Question 2

Question 2: Are persons who have undetectable levels of cariogenic flora more likely to acquire them from persons who have high levels of cariogenic flora than from persons who have low levels of cariogenic flora? Primary coronal, permanent coronal, permanent root, mixed dentition. Primary lesions only.

#	Yr	Title	Authors	Design per AHRQ	Sample source /country /method /response rate	No subj, each grp /No subj lost	Micro methods/Evaluator blinding	Lesion detection/Examiner training/Examiner reliability/Examiner blinding/Subject blinding	Other relevant data, questionnaires, confounders, demography. <u>Quality of data/strategy</u>	Findings (stat measures: means, odds ratios, risk ratios, likelihood ratios, sensitivity, specificity, conf intervals). Inferences re topic of this evidence table.
66	98	Incidence of mutans streptococci and lactobacilli in oral cleft children wearing acrylic plates from shortly after birth	Van Loveren et al	Longitudinal eval of 3 cohorts: cleft palate with obturator; clefts but without obturator; normal controls. Microbiologically sampled at ~6,9,13, 18, 24 months of age. Obturators placed shortly after birth.	Amsterdam and Rotterdam, the Netherlands. Caucasian subjects/Cleft palate teams's patients.	62 cleft lip/palate ± obturators. 24 with obturators placed in early life. Also normal control group (N=35).	Cotton swab to absorb saliva without contact with solid surfaces. Swabs weighed to determine volume of saliva. Swabs also of buccal mucosa, lower ant teeth after eruption, and acrylic obturators. Swabs to transport fluid (YEPT). BA, TYCSB, and SL for total, ms and lb at 18 mos of age. Confirmatory tests on identifications.		Those without obturator had cleft of lip and/or alveolus only. Data on SES, all have access to F. Note: no data on microbiology of either the obturator or the mucosa or teeth before 6 mo.	The oral cleft children wearing an acrylic plate from shortly after birth were colonized earlier with mutans streptococci and lactobacilli than the non-plate oral cleft children--~ 18 % vs 0 % at 6 mo. There is a parallel increase of % infants colonized at ~9 and ~13 mo, so that differential is maintained. This differential no longer persists at ~ 18 mo. In the children wearing acrylic plates, the prevalence of lactobacilli decreased with age, while the prevalence of mutans streptococci increased

30	94	Influence of caries-preventive measures in mothers on cariogenic bacteria and caries experience in their children	Kohler and Andreen	Longi with ± intervention on mothers when children were 3 yr old to reduce sm; follow-up obs now 4 y later (children now 7 yo)	Oskarshamn, Sweden;	Contol= 33; Tx = 26/Control: 7M, 7child Tx: 2M, 1child	Paraffin stim saliva. VMGII. ms and lb by MSB and SL.	Exam by std conditions (Koch)		Control mothers had significantly higher levels of salivary mutans streptococci and lactobacilli than the test mothers ($p < 0.05$). The median level of salivary mutans streptococci was 0.6 x 10(6) c.f.u. (colony-forming units) per ml in the test mothers and 1.3 x 10(6) c.f.u. in the control mothers. The median level of salivary lactobacilli was 10 times higher in control than test mothers (80 x 10(3) and 7 x 10(3) c.f.u. per ml, respectively). Significantly more children of control than test mothers carried mutans streptococci (95 versus 46%) (z-test; $p < 0.01$). Children of test mothers had lower salivary levels of mutants streptococci and lactobacilli ($p < 0.05$). Twenty three % of the test children were caries-free, compared with 9% of the control children (z-test; $p < 0.01$). The mean caries experience of the test children was also significantly lower than that of the control children (defstot 5.2 and 8.6, respectively; $p < 0.05$).

309	90	Plasmid profiling of members of the family Enterobacteria ceae, lactobacilli, and bifidobacteria to study the transmission of bacteria from mother to infant	Tann ock et al	Longi, for 30 days of infant of M/Cpairs.	Dunedin, New Zealand	5 M/C pairs	7 oral, vaginal and rectal samples cultured from mothers, only 1 oral had lb on SL agar. Plasmid profiles of isolates of the family Enterobacteriacea e, lactobacilli, and bifidobacteria cultured from vaginal, oral, and rectal swabs collected from women soon after admission to a maternity hospital were compared with those of strains detected in the feces of their infants.			Lactobacilli inhabiting the vaginas of the mothers did not appear to colonize the infant digestive tract. The fact that only one oral lb culture revealed any lactos within the mothers casts doubt on goodness of oral data. Did not do oral cultures on infants.

29	84	The effect of caries-preventive measures in mothers on dental caries and the oral presence of the bacteria Streptococcus mutans and lactobacilli in their children	Kohler et al	3 yr longi, interventional (sucrose avoidance instruction, alternately assigned to Tx or control. Intervention delivered to mothers (or not) consisted of aim at reduction of S mutans, repeated q2-4m, till children 3 yo. Entry depended on sal ms of ≥10E6 ms and child of 3-8 mo.	Oskarshamn, Sweden, primiparous mothers	40 control mothers; 37 test mothers/4 lost the info from the next column. It is in Q2 mutans	Mothers: Sal ms. VMGII and MSB and SL. Children: If able to cooperate, paraf stim sal with RTF and MSB and SL. Fab confirmation of identities of serotypes and species.	2 dentists independently, criteria of Koch (stick with explorer/No blinding of subjects	Breastfeeding?	The test mothers as a group had approx. 10-fold fewer S. mutans during the test period. At the age of 3 years, 70 percent of the children in the control group carried S. mutans, compared with 41 percent in the test group ($p<0.01$). Fifty-two percent of the children who carried S. mutans had caries at this age, compared to 3 percent of the children without this organism. The time when S. mutans was first detected in the children seemed to influence subsequent development of caries because 77 percent of the children who carried S. mutans at the age of 15 months had caries at the age of 3 years. Approximately 40 percent of the children in both the control and the test group had detectable lactobacilli in their saliva at 3 years. In general, the children in the control group had more lactobacilli. No signif diff in self reported frequency of sucrose intake.

67	83	Preventive measures in mothers influence the establishment of the bacterium Streptococcus mutans in their infants	Kohler et al	Longi interventional, sequential assignment to Tx or control primiparous mothers with high ms in saliva and their infants. Every second mother was given a special preventive program to reduce her salivary level to < 3 x 10(5) c.f.u. per ml. N=38 control. N=38 intervention. Intervention: OH and diet instruction, professional cleaning, F tx topically, excavation of large lesions.	Oskarshamn, Sweden	81 Primiparous mothers; 40 control and 41 Tx.. /Controls 13; tx 20	Sal ms with threshhold of ≥10E6 for maternal inclusion. Babies cultured at 15, 23, and 36 mos of age.		At 15 mos age of child-- control N=38; tx N=40. At 23 mos age of child—control = 38; tx=38. At 36 mos age of child—control =27; tx=21.	28 mothers were successfully treated until their infants were 23 months old and only 3 of their infants (11 per cent) were infected with S. mutans, compared with 17 out of 38 infants in the control group (45 per cent). (signif, chi sq) In both groups, the percentage of infected infants increased with increasing age, although at all ages fewer infants were infected with S. mutans in the test group than in the control group. Sixteen infants of successfully treated mothers had reached the age of 36 months without detectable infec vs control (p<0.02 shi sq with Yates'correction). Three were infected (19 per cent) compared with 17 out of 27 in the control group (63 per cent).

302	82	Effect of caries preventive measures on Streptococcus mutans and lactobacilli in selected mothers	Kohler et al	Interventional, alternative assignment, longi study of primiparous mothers. Inclusion criterion included sal ms of ≥ 10E6/ml. Intervention: diet counseling (esp re sucrose avoidance, prof toothcleaning with F pumice, and OH instruc, topical F tx, excavation of larger cavities and temp fillings, then F varnish. If at followup, pt has ≥3 x 10E5 ms, 1% CH gel daily for 2 wks. Controls: std care.	Oskarshamn, Sweden	All primip mothers=249. Control=42; Tx=45	Paraffin stim sal. VMGII, plated on next day on MSB and SL for ms and lb.		3-day diet diary and motivation to mother by information about increased caries risk for child if mother has high ms and risk behaviors.	A statistically significant reduction in both S. mutans and lactobacilli was found to result from Tx regimen p<0.001 for ms and 0.02 for lb. The basic preventive program was effective in reducing the number of S. mutans below a selected threshold value of 300 000 cfu/ml saliva in 60% of the mothers. In the remaining treated subjects chlorhexidine treatment was required to suppress the salivary levels of S. mutans below this value by about 1 log, but lactobacilli were unaffected.. Study established a complex, microbial recovery guided strategy for reduction of ms.

310	75	Transmission of Lactobacillus jensenii and Lactobacillus acidophilus from mother to child at time of delivery	Carlsson and Gothefors	Obs Search for presence and correspondence of lactos in vaginal secretions and feces of predelivery M and then in mouth and feces of C.	Umea, Sweden	13 M/C pairs. 33 additional infants.	Cotton applicator sampling and plate on SL agar. Speciate biochemically. Oral cultures up to 6 days.			In 7 of 13 cases Lactobacillus sp were found in both the vagina of the mother and in the mouth of the infant postpartem. However, they were no longer detectable when infants mouths followed longitudinally with SL agar, or in 33 other 6 day old infants. Cannot use to exclude possible vaginal source of oral colonization of mouth. Could be in numbers below detection limits with oral swab, and infant not likely to have been fed sugar to foster its emergence in oral cavity. Also, would need more unique marker for tracing epidemiologically the spread of lactos.

Evidence Table Sanguis strep Q2

Sanguis group
Question 2: Are subjects who have undetectable levels of cariogenic flora more likely to acquire them from subjects who have high levels of cariogenic flora than from subjects who have low levels of cariogenic flora?
Designate teeth:
Primary, permanent coronal, permanent root, or mixed dentition
Initial lit. scan by JMT, AT, JL

#	Y	Title	Authors	Design per AHRQ	Sample source/country/method/response rate	No subj, each grp/No subj lost	Micro methods/Evaluator blinding	Lesion detection /Examiner training /Examiner reliability /Examiner blinding /Subject blinding	Other relevant data, questionnaires, confounders, demography. Quality of data/strategy	Findings (stat measures: means, odds ratios, risk ratios, likelihood ratios, sensitivity, specificity, conf intervals). Inferences re topic of this evidence table.
311	00	Natural history of Streptococcus sanguinis in the oral cavity of infants: evidence for a discrete window of infectivity	Caufield et al	Longi of ? transmission to children from mothers; Another cohort of children as control	US?	?	?genotyping? saliva and plaque ms	na		The transmission and acquisition of oral bacteria within mother-infant pairs, examined the initial acquisition of S. sanguinis and colonization relative to tooth emergence and its proportions in plaque and saliva as a function of other biological events, including subsequent colonization with mutans streptococci. Colonization of the S. sanguinis occurs during a discrete "window of infectivity" at a median age of 9 months in the infants. Its colonization is tooth dependent and correlated to the time of tooth emergence; its proportions in saliva increase as new teeth emerge Elevated levels in the oral cavity were correlated to a significant delay in the colonization of mutans streptococci. After mutans streptococci colonize the infant, the levels of S. sanguinis decrease. Children who do not harbor detectable levels of mutans streptococci have significantly higher levels of S. sanguinis in their saliva than do children colonized with mutans streptococci. Stats??

85	98	Mutacin production by Streptococcus mutans may promote transmission of bacteria from mother to child	Gronroos et al	obs	Finland	19 mothers and their 18-36 mo chldn	Mutacin typing vs panel of 14 strains; Ribotyping Total of 145 isolates studied		Other caregivers/How reliable is mutacin typing with only 14 indicator strains?	Streptococcus mutans isolates showed more inhibitory activity than did Streptococcus sobrinus isolates. Identical ribotypes had similar mutacin activity profiles within a subject, initially and in the follow-up studies, in all but two cases. The mothers harbored a total of 37 different mutans streptococcal ribotypes. Six children were negative for mutans streptococci. Transmission was probable in 9 of 20 mother-child pairs on the basis of the presence of identical strains, as determined by ribotyping and bacteriocin (mutacin) typing. S. mutans strains shared between a mother and her child showed a broader spectrum of inhibitory activity than did nontransmitted strains. No comment re sanguis group.
312	94	Microorganisms on toothbrushes at day-care centers	Malmberg et al	Obs	Sweden, day care centers	44 toothbrushes	Culture for oral streps			Streptococci, predominantly S. salivarius, S. sanguis, and S. mitis, were the most frequently recorded group of microorganisms and generally constituted the greatest part of the flora (on average, 50%). Beta-hemolytic streptococci were not found in any sample. Haemophilus species were noted in 82% of the samples. H. parainfluenzae being the most frequent, and H. influenzae being identified in only one sample. Anaerobes constituted on average a third of the microflora. Staphylococci were identified in 86% of the samples, S. epidermidis dominating. Fungi including molds were found in 50% of the samples, and from one day-care center large numbers of enteric organisms were identified.

313	82	Colonization and cariogenic potential in hamsters of the bacterium Streptococcus sanguis isolated from human dental plaque	West ergren and Emilsson	Human isolates of sanguis strep tested for implantation and caries induction in hamsters	Sweden	? # of strains	Pure cultures implanted to albino hamsters	Keyes' method for hamsters		Three of the strains tested did not cause caries in hamsters. Laboratory strains of Strep. sanguis did not colonize the hamsters.
		Embase did not retrieve on point cites here.								